the iodine was volatilized, and a room was quickly purified. Dr. Richardson said that in cases of smallpox a knowledge of the facts he had named was most valuable. In rooms occupied by sufferers from this painful disease, organic matters floated largely in the air, rendering the air most offensive. He (Dr. Richardson) had succeeded, in all cases, in rendering such air inodorous by the volatilization of iodine. He had also observed the singular fact that when the air was greatly charged with organic materials, the smell of the iodine was for a long time imperceptible, so that, in truth, the iodine method of purification was also a ready and practical test of the purity of an air. Dr. Richardson thought the iodine plan was quite as effective as the liberation of free ozone—it was, indeed, in principle the same, and was so simple that every person could employ it.—*Med. Times and Gaz.*, Sept. 26, 1863.

42. *Effects of Surat Cotton on the Health of Operatives in Mills.*—Mr. Jesse Leach, of Lancashire, makes (*Lancet*, Dec. 5, 1863) the following interesting observations on this subject, which are well worth the attention of proprietors of cotton factories in this country.

"When viewing a sunbeam in the comparatively still atmosphere of a room, the air is seen filled with dust and short textile fibres. Placed in the same situation while the room floor is being swept, the sunbeam appears completely glutted with larger quantities of the same floating materials, causing an oppression of the chest and disposition to sneeze. What is manifestly revealed to us through the medium of a sunbeam in a private room more forcibly applies to the rooms of a cotton mill, where the short fibres and dirt of the staple material are effectually separated by the teeth of machinery revolving at a rapid speed.

"It is necessary to say a few words on the cotton staple to correctly estimate the amount of dust in different samples of cotton. Whatever name it bears, much loss is sustained during the processes of manufacture: the American the least; the East Indian or Surat the most. Twenty-five per cent. is an average loss during the manufacture of Surat. The greater amount of loss sustained the more damaging to the constitutions of the operatives employed. The higher the rooms of a mill and the better their ventilation, the more harmless to the health of the workers; the lower the rooms of a mill and the more imperfect their ventilation, the greater the amount and extent of bodily sufferings of the mill operatives. The following remarks more particularly apply to operatives working in low, narrow, ill-ventilated rooms, where Surat cotton is used.

"The first process the raw cotton undergoes is the mixing of one staple with another. Much dirt and dust is disengaged in this operation. The respiration is affected from the dust irritating the respiratory passages of the mixers, and coughing and sneezing are the frequent consequences, which disengage from the bronchial membrane a quantity of slaty-coloured expectoration, which, when placed under the microscope, is seen to consist of very fine short fibres of cotton in air-bubbles and mucus. The sneezing is occasioned by the same material irritating the olfactory nerves during nasal breathing. The arms and hands of mixers are not unfrequently affected with a cutaneous rash, much resembling nettle rash. This may partly arise from fine sand and short fibres of cotton destroying the epidermis, and irritating by their presence the true skin. Their complexion is pale and sickly. After passing from the mixers, the cotton passes through the hands of the willowers and scutchers. When ventilation is not assisted by ventilating chimneys of tin or wood, which take off more effectually the dense atmosphere with which these rooms are charged, the willowers and scutchers suffer in the same manner as the cotton mixers. From the immense velocity of the machines used, the revolutions being 1500 per minute, the quantity of short fibres of cotton set afloat in these rooms is very great. It would be difficult to recognize a man at twelve yards' distance, from the density of floating fibres, modified, of course, very much by a wet or dry day. The strippers, grinders, and card-room hands are engaged in the next process of cotton manufacture. They mostly suffer from a spasmodic cough, sore throat, expectoration of blood, pneumonia, and confirmed asthma, with oppression of the chest. Various expedients are resorted to to liberate the small cotton fibres by expectoration from the pulmonary air-cells: tobacco chewing, the use of gin, and smoking out of the mill are very commonly habitual. The teetotalers use tea and coffee in lieu of these for the same purpose. A carder seldom lives in a card-room beyond forty years of age; many have to give up working much younger. Forty-five to fifty years are their average ages. The next room the cotton comes to is the drawing and roving room. Drawers and rovers suffer very little from the small floating cotton fibre. The tonsils are sometimes enlarged, and the pharynx and larynx much injected. They suffer so little inconvenience from these conditions that an ocular demonstration is necessary to convince one's self of their presence. There is comparatively much less floating short cotton fibres in these and the next rooms. The mule and throstle rooms are the next, where cotton assumes the cotton-thread. Their temperature is much higher, ranging from 75° to 90° Fahr. The light is freely admitted through numerous lofty windows. A high temperature and much light are requisite for the spinning of the cotton-thread. The hands in these rooms look pale and sickly; but are lively, cheerful, and active. They suffer much from facial tic and toothache, slight colds, and sore throat during cold and damp weather, probably arising from their sudden transition from the heated atmosphere in which they work to a raw cold one outside the mill on their way to and from their meals. The next class of workers are the packers occupied in the warehouses. They are generally very healthy, active, and much better looking. These rooms are of a moderate temperature, and very well ventilated, which account for the improved appearance and general health of the men employed therein.

"I have now passed through the general affections of operatives engaged in the various processes necessary to produce the cotton-thread from Surat cotton, and shown, as I trust, plainly that these affections arise in a great measure from the circumstance that Surat cotton has a much shorter fibre than any other kind of cotton; that its manufacture involves on an average twenty-five per cent. of loss to the spinners; that the teeth of the machines through which it has to be passed are of necessity set closer for the better working of it; and that the health of the operatives employed suffers much more, from its short fibres irritating the epithelial mucous surfaces of the air-passages during inspiration, whether nasal or vocal; and that the only remedy is more effectual ventilation in the mixing, scutching, carding, and drawing rooms. Beyond these rooms I have not observed a greater amount of suffering than from working any other class of cotton. Lastly, whatever principle of ventilation be adopted, the lightness and shortness of the fibre of Surat cotton are so remarkable that a much greater loss than twenty-five per cent. would be observable if increased ventilation be much applied; but this loss would be amply compensated for by a better quality of cotton-thread, bearing an increased marketable value. Many wealthy manufacturers, compelled to use Surat cotton since the cotton famine, have applied increased ventilation to free the mixing and scutching rooms from the additional dust attending its use, and have at considerable expense brought into use powerful fans, more elevated rooms, and other appliances; and in every instance the factory operatives enjoy comparative impunity from what remains of the floating dust. The use of better gins would free the raw cotton of Surat from much of its present dirt, and our East Indian authorities possess the power of enforcing them, which would enhance the value of the cotton, and confer an inestimable boon on the Lancashire hive of wealth and industry."

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43. *Dangers of Slaughtering Diseased Cattle.*—Prof. JOHN GAMGEE, of Edinburgh, has published (*Lancet*, Feb. 13, 1864) the following important observations on this subject:—

"On the 22d of October, 1863, a bull was taken ill on a farm and in a county which I decline to name. My reasons for not mentioning the place are, that every effort has been made to keep the secret, as in a host of similar cases, and it will serve no purpose whatever to expose those who, in ignorance and in consequence of the lax state of our laws on this subject, acted as their neighbours would have done. A labourer on the farm, who had been formerly a butcher, volunteered to slaughter the sick bull, that its carcase might be saved for the butcher's stall. Unfortunately, the poor man had previously injured his hand with a spade, and he performed his task without due regard to the condition of